AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (Currently Amended) A bipolar plate for a fuel cell, the bipolar plate including a flow field through which one of a fuel and an oxidant is allowed to flow,

wherein the flow field has a length that is between three and eight times greater than the square root of the area of the bipolar plate.

2. (Original) The bipolar plate of claim 1, wherein the flow field is formed in a reaction plate that protrudes above a surface of the bipolar plate with a predetermined gap from the edge of the bipolar plate.

3. (Original) The bipolar plate of claim 1, wherein the flow field is formed in a reaction plate that is recessed from a surface of the bipolar plate with a predetermined gap from the edge of the bipolar plate.

4. (Original) The bipolar plate of claim 1, wherein the flow field comprises channels through which the fuel or the oxidant flows and a rib acting as a barrier between the channels, and the channels have a width that is between 1.3 and 2 times greater than the width of the rib.

5. (Original) The bipolar plate of claim 4, wherein each of the channels has a length that is between three and eight times longer than the square root of the area of the bipolar plate.

6. (Original) The bipolar plate of claim 1, wherein the flow field includes no more than sixty 90-degree turns.

7. (Original) The bipolar plate of claim 1, wherein the flow field includes no more than twelve 180-degree turns.

8. (Original) The bipolar plate of claim 6, wherein the 90-degree turns are rounded.

9. (Original) The bipolar plate of claim 7, wherein the 180-degree turns are rounded.

10. (Original) The bipolar plate of claim 1, wherein the flow field has an inlet and an outlet that are arranged on the same side and face the same direction.

11. (Original) The bipolar plate of claim 10, wherein the flow field has an inlet and an outlet that are elliptical.

12. (Original) The bipolar plate of claim 4, wherein the flow field has an inlet and an outlet that are fan-shaped and have a width increasing away from the channels.

13. (Original) The bipolar plate of claim 4, wherein the flow field has an inlet and an outlet that have a 30-50% greater depth than the channels.

14. (Original) The bipolar plate of claim 1, further comprising a thermoelement inlet in an edge region.

15. (Currently Amended) A fuel cell comprising:

a first bipolar plate having a fuel flow field;

a second bipolar plate having an air flow field; and

a membrane electrode assembly interposed between the first and second bipolar plates and in which reactions of a fuel and an oxidant take place,

wherein the fuel flow field has a length that is between three and eight times greater than the square root of the area of the first bipolar plate, and the air flow field

has a length that is between three and eight times greater than the square root of the area of the second bipolar plate.

16. (Original) The fuel cell of claim 15, wherein the fuel flow field is formed in a reaction plate that protrudes above a surface of the first bipolar plate with a predetermined gap from the edge of the first bipolar plate.

17. (Original) The fuel cell of claim 15, wherein the flow field is formed in a reaction plate that is recessed from a surface of the first bipolar plate with a predetermined gap from the edge of the first bipolar plate.

18. (Original) The fuel cell of claim 15, wherein the air flow field is formed in a reaction plate that protrudes above a surface of the second bipolar plate with a predetermined gap from the edge of the second bipolar plate.

19. (Original) The fuel cell of claim 15, wherein the air flow field is formed in a reaction plate that is recessed from a surface of the second bipolar plate with a predetermined gap from the edge of the second bipolar plate.

20. (Original) The fuel cell of claim 15, wherein the fuel flow field comprises channels through which the fuel flows and a rib acting as a barrier between the channels, and the channels have a width that is between 1.3 and 2 times greater than the width of the rib.

21. (Original) The fuel cell of claim 18, wherein the air flow field comprises channels through which the fuel flows and a rib acting as a barrier between the channels, and the channels have a width that is between 1.3 and 2 times greater than the width of the rib.

22. (Original) The fuel cell of claim 19, wherein the air flow field comprises channels through which the fuel flows and a rib acting as a barrier between the

channels, and the channels have a width that is between 1.3 and 2 times greater than the width of the rib.

23. (Original) The fuel cell of claim 15, wherein the fuel flow field includes no more than sixty 90-degree turns.

24. (Original) The fuel cell of claim 15, wherein the fuel flow field includes no more than twelve 180-degree turns.

25. (Original) The fuel cell of claim 15, wherein the air flow field includes no more than fifty 90-degree turns.

26. (Original) The fuel cell of claim 15, wherein the air flow field includes no more than ten 180-degree turns.

27.(Original) The fuel cell of claim 23, wherein the 90-degree turns are rounded.

28. (Original) The fuel cell of claim 25, wherein the 180-degree turns are rounded.

29. (Original) The fuel cell of claim 24, wherein the 180-degree turns are rounded.

30. (Original) The fuel cell of claim 15, wherein the fuel flow field has an inlet and an outlet that are arranged on the same side and face the same direction.

31. (Original) The fuel cell of claim 15, wherein the air flow field has an inlet and an outlet that are arranged on the same side and face the same direction.

32. (Original) The fuel cell of claim 15, wherein an inlet of the fuel flow field is separated from an inlet of the air flow field, with an outlet of the fuel flow field or an outlet of the air flow field therebetween.

33. (Original) The fuel cell of claim 15, wherein an outlet of the fuel flow field is separated from an outlet of the air flow field, with an inlet of the fuel flow field or an inlet of the air flow field therebetween.

34. (Original) The fuel cell of claim 15, wherein the fuel flow field has an inlet and an outlet that are elliptical.

35. (Original) The fuel cell of claim 15, wherein the air flow field has an inlet and an outlet that are elliptical.

36. (Original) The fuel cell of claim 20, wherein the fuel flow field has an inlet and an outlet that are fan-shaped and have a width increasing away from the channels.

37. (Original) The fuel cell of claim 21, wherein the air flow field has an inlet and an outlet that are fan-shaped and have a width increasing away from the channels.

38. (Original) The fuel cell of claim 20, wherein the fuel flow field has an inlet and an outlet that have a 30-50% greater depth than the channels.

39. (Original) The fuel cell of claim 21, wherein the air flow field has an inlet and an outlet that have a 30-50% greater depth than the channels.

40. (Original) The fuel cell of claim 15, wherein the first bipolar plate comprises a thermoelement inlet in an edge region.

41. (Original) The fuel cell of claim 15, wherein the second bipolar plate comprises a thermoelement inlet in an edge region.

42. (Original) The fuel cell of claim 15, wherein the first bipolar plate is an anode, and the second bipolar plate is a cathode.

43. (Original) The fuel cell of claim 15, wherein the internal pressure of the first bipolar plate is in the range of 0.05-0.12 bar.

44. (Original) The fuel cell of claim 15, wherein the internal pressure of the second bipolar plate is in the range of 0.02-0.08 bar.

45. (Currently Amended) The fuel cell of claim 20, wherein each of the channels has a length that is between three and eight times longer than the square root of the area of the first bipolar plate.

46. (Currently Amended) The fuel cell of claim 21, wherein each of the channels has a length that is between three and eight times longer than the square root of the area of the second bipolar plate.